THE MARINE RECORD

ESTABLISHED 1878

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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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SATISFIED WITH THE PRESENT RULE.

A meeting of the finance committee and board of managers of the Lake Carriers' Association was held Monday to enter a protest against any change being made in the regulations just made in regard to navigation of the St. Mary's River. The cause for calling the meeting was the annonncement in a Detroit paper that Mr. John Shaw, an admiralty lawyer of that city, had been in conference with Captain Davis, of the revenue steamer Johnson, and had drawn up some amendments to the rules, which allowed, among other changes, a speed of 11 miles per hour, and permission to pass in some localities, also reducing the minimum distance between vessels bound in the same direction from half a mile to 1,000 feet. Some of those present at the meeting expressed a good deal of indignation at the effort to change the rules, which all agreed had proved most satisfactory, as shown by the occurrence of but one or two collisions there this season, even including those where only minor damage was inflicted. It was openly charged that the changes were proposed from purely personal motives. The expressed sentiment of owners present was that the rules had been formulated with great care, by owners and masters, with a view to preventing accidents; that masters had been instructed to act in much the same lines for several seasons past, and had failed to act according to such instructions; that the owners were pleased to have the government step in and look after the enforcement of these regulations; and that masters caught violating these rules would be required by owners, as a matter of discipline, to either pay such fines as might be imposed upon boats under their charge for violation of these rules, or resign their positions. A committee was then appointed, consisting of Messrs. M. A. Bradley, H. A. Hawgood, John W. Moore, J. C. Gilchrist, and James Corrigan, who reported the following resolutions, a copy of which will be sent to the revenue steamer Johnson, and a copy to the Treasury Department at Washington:

Whereas, A letter has been received by Capt. W. S. Mack from Capt. Davis, of the revenue service, in charge of the enforcement of St. Mary's River regulations intimating that certain changes may be made in the regulations, and

Whereas, The present regulations were prepared by the masters themselves, who navigate the river and know the difficulties and dangers to be avoided, with the advice and assistance of revenue officers, the Supervising Inspector General and other competent officials familiar with such matters, and had the full approval of the owners of such vessels and of all interested in the satety of life and property there; and,

Whereas, It was understood that the rules be given a full trial this season, and that parties interested and the Treasury and revenue officers at the end of the season carefully consider, and if necessary revise the rules; therefore be it

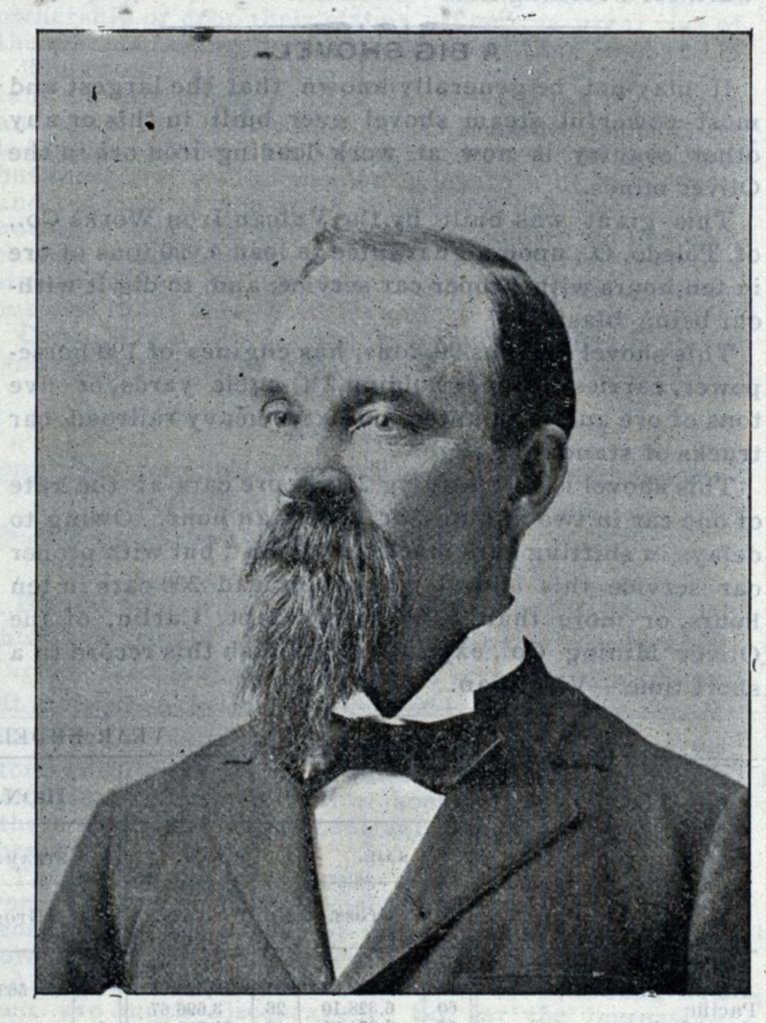
Resolved, That the present rules have operated well and only require some slight improvements in administering them, such as providing a launch at Sailors' Encampment, and one at the lower end of the dyke; and

Resolved, That these rules have accomplished the object and purpose of their adoption in preventing collisions, breaking up of tows, strandings, and other disasters in the Sault River, so that now we regard the navigation there comparatively safe, whereas before the adoption of these rules, it was regarded with dread as the most dangerous navigation of the lakes; and

Resolved, That the speed limit is quite fast enough; that the point that a steamer requires more than seven miles speed, or more than half speed for steerage way is incorrect; that the published criticisms on the present rules seem insincere, apparently made or prompted by persons who have violated the rules in a selfish attempt to gain advantage, or who desire the violation of the rules or their alteration at the expense of safety; and

Resolved, That the Lake Carriers' Association earnestly protest against the proposed changes or any change in the rules, and request the placing of a launch permanently at the Sailors' Encampment, and one at the dyke, for their more complete enforcement; and

Resolved, That the original committee, Capts. W. S. Mack, Thomas Wilson, George P. McKay, James Davidson, W. P. Henry and James Calbick, be, and they are requested to take this matter up with the proper officials, and, if necessary, that some of their number go from the Sault to Washington and prevent any meddling with the rules.



D. C. McINTYRE.

NEWLY ENROLLED TONNAGE.

Following is a list of lake vessels to which official numbers and signal letters have been assigned by the Commissioner of Navigation, for the week ending July 18:

Official No.	Rig.	Name.	TONNAGE. Gross.	Net.	Where Built	Home Port
77,226	St. s.	John Ericsson	3 200 79	2,378.27	Superior	Duluth
116,725	St. s.	Senator	4 048.75	3,178 66	Wyandotte	Detroit
157,455	St. s.	Delta	145.09	98 67	Elizabethport	Cleveland
86 358	St. s.	Gamma	145.00	98 60	Elizabethport	Cleveland
93.728	Sch. y	Manitou	31.07	29.48	Cleveland	Cleveland
81.548	Schr.	Wm. Stone	185.10	166 40	Vermillion	Detroit
34,252	Bge.	C.S.C.CoNo.9	163 73	163.73	Elizabethport	Cleveland
34.253	Bge.	CSC Co No.10	163.69	163.69	Elizabethport	Cleveland

MR. D. C. McINTYRE.

The subject of this sketch needs little introduction to the people traveling or shipping freight by boat between Cleveland and Detroit. He has charge of the eastern terminal passenger business of the D. & C. Steam Navigation Co., whose territory extends from Cleveland and Toledo on the south, to Mackinaw Island and St. Ignace on the north, and of the freight business of the entire line.

Mr. McIntyre was born in Glasgow, Scotland, in 1852. His father brought his family to America five years later, coming first to New York, and afterwards locating in London, Ont. He then removed to the country near the latter city. Mr. McIntyre received his education in the district schools, but his receptive temperament, together with that desire for advancement in knowledge which is so characteristic of the Scot, he has picked up a large amount of scientific information, including the principles of navigation, and, to some extent, those of engineering.

At the age of twenty-two years he went to Detroit, and took a position as watchman on one of the boats of the D. & C. Co., with whom he has ever since remained. He soon became lookout and then wheelsman, and promotion followed rapidly until he entered the offices of the company. In 1884 he was appointed local freight agent at Detroit and became general freight agent in 1891. The following year the title of district passenger agent was added, and his headquarters were changed to Cleveland, where he has since remained. Mr. McIntyre is a successful business man, and while he is well liked by all, it is everywhere conceded that estimates of him are always raised upon closer acquaintance.

OPENING OF THE NEW LOCK.

The new American lock at Sault Ste. Marie, Mich., will be opened next Monday morning, August 3. About the only work to be done is upon the approaches. Col. G. J. Lydecker was informed last week that the contractors believed they could have everything in readiness for opening the lock on August 1; but he replied that it is better to act on a certainty than to run the risk of a hitch, and that arrangements should be made with a view to opening the lock on Monday. There will be no formalities in connection with the opening, but Col. Lydecker will undoubtedly be there in person.

The new lock is one of the world's masterpieces of engineering skill, and its dimensions are as follows: Length between upper and lower gates, 800 feet; width, 100 feet, top and bottom; depth on miter sill, 21 feet; lift 18 feet.

It had been hoped that the deepening of the channel at Sailors' Encampment, which now regulates the draft of vessels passing to and from Lake Superior, would be completed as soon as the new lock was available for use. It is learned, however, that this work will not be finished for several weeks. When this is done the difference in draft between boats loading in Lake Superior and those loading in Lake Michigan for lower lake port will no longer exist, the draft of all these boats being regulated by the depth of water in Detroit River.

SILVER AND PRICES.

The silver miners want free coinage to put up the price of their product. The farmers want it to cheapen dollars.

It cannot do both. If, as the silver miners contend, free coinage would so advance silver as to make the bullion in a silver dollar worth 100 cents, then the silver dollar would be as hard to get and as costly to the farmer as the gold dollar is now alleged to be. One or the other class of free silver advocates would be disappointed in the results of free coinage.—New York World.

THE FREIGHT SITUATION.

What has for many weeks been looked forward to with dread as apparently inevitable has at last come, and there will probably be a hundred boats in ordinary by the end of the week. These include some of the largest and most modern ships, with every advantage in the coal and ore trades, which is clear assurance that shippers have done their very best to get the cargoes forward, but that loads are practically exhausted. The worst feature of the situation is that there is no prospects of improvement for at least three months. To be sure grain will soon begin to go forward in larger quantities, but even this will provide for only a part of the tonnage, and it will not be surprising to see some of the larger ships which have been turned out this year tied up to the dock very soon. The dullness extends even to the package freight liners, this being undoubtedly due to the practical cessation of shipments of manufactured iron.

Rates are no longer a subject of controversy, some of the boats seeming satisfied with anything a shipper might want to pay, so long as the cargo is furnished. A charter of coal to Milwaukee at 25c is ample proof of this. There has been no change in ore rates, owing to the almost entire absence of mill cargoes.

VESSEL TRANSFERS.

Capt. Peter Blake and others, who formerly owned the schooner R. Kanters, have bought her again from the Leathem & Smith Towing & Wrecking Co., for $900. The latter had paid the owners $100 for a quit claim on the vessel, and the wrecking and repair bills were $325. Capt. Blake had sold the Kanters' outfit to Joys Bros., of Milwaukee, and had to buy that back, too.

Capt. Anton Nelson, of Sheboygan, Wis., has sold the schooner Pride to Capt. C. Klingenberg, of Washington Island, for $600.

Augustine & Nelson, of Sturgeon Bay, have sold the steam yacht Bijou to Alex. Richards, a traveling veterinary surgeon, who will cruise her down the Mississippi to the Gulf. The price was $500.

NOTICE TO MARINERS.

PORTAGE RIVER RANGE LIGHT STATION.

Notice is given that, on July 3, 1896, a fixed white lantern light was established on each of the two structures recently erected on the southerly prolongation of the axis of the dredged channel from Portage Lake into the head of Portage River, Keweenaw Peninsula.

Front Light.—The front light is shown 18 feet above mean lake level, suspended from a bracket on a mast in front of a small lamp.house on a square crib, in about 6 feet of water, on the E. bank of the channel. The mast carries an oval day mark of slats. The entire structure, excepting the crib, is white.

Rear Light.—The rear light is shown, 25 feet above mean lake level, suspended from a bracket on a mast in front of a small lamp-house on the easterly bank of the river, 600 feet S. 16° 05′ E. (S. by E. ⅜ E.), true, from the front light. The mast carries an oval day mark of slats. The entire structure is white.

CHANGES IN SAULT BOUYS, ETC.

The following changes were made July 15, in the buoyage at Sault Harbor, St Mary's river: A red nun-buoy placed on the southern edge of Bayfield Rock; the the red spar on Bayfield Rock has been removed; the black can buoy abreast the crib light has been replaced by a black spar buoy; the red can buoy in the lower part of the harbor near the upper end of Hay Lake channel, has been removed. The upper end of Hay Lake cut is marked by a black can buoy on the western side, and a red nun buoy on the eastern side.

SHOALS REMOVED.

Daily Bros., contractors, of Ogdensburg, have furnished the Hydrographic Office with the following information relative to the removal of shoals, near Blind Bay, head of the St. Lawrence River: "All shoals abreast of Blind Bay, as shown on the chart, have been removed. There is still another shoal not shown on the chart, situate just a little above Blind Bay, but as there was only about one cubic yard above the required depth (19 feet), it was not touched. The John Pridgeon shoal was removed in 1892 to a depth of 18 feet, but as the water has lowered a great deal, it is at the present statement, above grade. We understand it will be removed under the present appropriation. We also removed this year, the shoal between Whaleback and Bay State shoals."

NOTES FOR NAVIGATORS.

The middle ground in St. Mary's River, just below the lock, opposite Spry's dock, has been removed to a depth of 20 feet. The buoys formerly marking this shoal have been removed.

The Canadian buoys on the east side of the dredged channel at the mouth of Lake Erie, Detroit River, have this year been rearranged and increased in number. The Canadian buoys marking the east edge of this dredged cut are now seven red wooden spars.

After a careful examination of Erie, Pa., harbor, it is reported by the engineers that no evidence of shoaling was found in the locality 100 yards E. ½ S. (S. 85° E.) of can buoy No. 2, as had been reported.

The government of St. Domingo, by the middle of August, will light the harbor and mouth of the Ozama River by electricity for the benefit of shipping. To maintain the lights, a tax of 2½ cents per ton net will be levied on all vessels entering the harbor, and 1¼ cents on all vessels remaining in the roadstead.

WRECKS AND WRECKING.

The damage to shipping reported during the week is all of a minor character, and includes the stranding at Porte des Morts, entrance to Green Bay, of the steamer Waverly, in a heavy fog Monday night. She was ore-laden from Escanaba to South Chicago. The schooner Algeria damaged the Henry Johnson's stern slightly by striking her at the Sault. The steamer Unique stranded a week ago in St. Clair River, and lost her shoe and rudder.

The wreck of the Mark Hopkins, in dry-dock at South Chicago, is reported in very bad shape, and will probably be turned over to Capt. Henry McMorran as his reward for wrecking her.

A BIG SHOVEL.

It may not be generally known that the largest and most powerful steam shovel ever built in this or any other country is now at work loading iron ore in the Oliver mines.

This giant was built by the Vulcan Iron Works Co., of Toledo, O., upon a guarantee to load 4,000 tons of ore in ten hours with proper car service, and to dig it without being blasted.

This shovel weighs 90 tons, has engines of 190 horse-power, carries a dipper holding 2¼ cubic yards, or five tons of ore and is mounted on extra heavy railroad car trucks of standard gauge.

This shovel is now loading 25-ton ore cars at the rate of one car in two minutes, or 20 cars an hour. Owing to delays in shifting cars much time is lost, but with proper car service this shovel will easily load 200 cars in ten hours, or more than 5,000 tons. Capt. Carlin, of the Oliver Mining Co., expects to establish this record in a short time.—Virginian.

OBITUARY.

CAPTAIN WILLIAM STONER.

Captain William Stoner, one of the most prominent citizens of Monroe, Michigan, died there Monday evening, the 27th inst., at the age of 72 years. He was born in 1824, at Big Cave, Pa. His father removed with his family in a prairie schooner when his son was nine years old, settling in Monroe in 1833. The deceased took to the lakes at an early age, and soon became master of a vessel. He sailed the lakes for 38 years, during which time he was master and part owner of the Rush, Snowdrop, Rebecca and St. Joseph. He enjoyed the distinction of never having had a serious mishap during his long sailing career. Mrs. Stoner died early last winter, shortly after the pair had celebrated their golden wedding anniversary, and the Captain had failed rapidly since.

CAPTAIN JOHN P. REDDY.

Captain John P. Reddy died at his home, No. 133 Chicago street, Milwaukee, Wednesday afternoon of last week. Captain Reddy was born in Newfoundland in 1832, but removed to Milwaukee when about 15 years old. He has sailed the lakes, as seaman or officer, nearly ever since. His wife, two sons and a daughter survive him.

Arthur Sewall, candidate for Vice President of the United States on the Democratic ticket, is a protectionist of the Sam Randall school, and has always been outspoken against free ships. Within the year he accepted the presidency of an organization having for its object the better protection of American shipping by the differential duty plan.—Marine Journal.

INCREASE IN THE SIZE OF SHIPS.

We have just received, through the courtesy of Mr. Eugene F. Chamberlin, Commissioner of Navigation, the shipbuilding statistics of the year ended June 30, 1896, also for purposes of comparison a table showing the corresponding statistics for the previous fiscal year. These figures include the tonnage which has been admeasured by the local customs officers at the various shipbuilding ports for the periods named, and this is usually done about the time of launching.

The most interesting feature about the figures contained in the tables given herewith is the showing of the large size of lake vessels as compared with those built on the coast. Thus, while during the fiscal year lately ended, the lakes built only 15 per cent of the number of vessels built in the United States during the year, in tonnage the percentage is in excess of 45. The average size of the vessels has increased from 408.76 tons in 1895 to 885.59 tons in 1896, or more than 100 per cent, while on the Atlantic coast the vessels averaged 179.91 in 1895 and 196. tons for the year just ended, an increase of only about 10 per cent. The figures given below are worthy of careful study for other reasons, showing the growing tendency toward the use of steel in all classes of tonnage.

YEAR ENDED JUNE 30, 1896.

	WOOD.				IRON.		STEEL.				TOTAL.			
	SAIL.		STEAM.		STEAM.		SAIL.		STEAM.				Per Cent	
	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.	No.	Average Gross Tons
Atlantic and Gulf	295	39,237.89	101	13,523.68	4	562.57	1	59.84	31	31,220.92	432	84,605.00	62	196,00
Pacific	60	6,328.10	26	3,696.67	....	.....	....	.....	2	4,551.34	88	14,576.11	11	165.64
Great Lakes	25	8,374.31	49	10,739,59	1	1,938.12	5	15,008.66	24	56,020.10	104	92,080.78	15	885.39
Western Rivers	1	20 97	84	12,793.99	....	.....	....	.....	....	.....	85	12,814.96	12	150 76
Total	381	53,961 27	260	40,753.93	5	2,500.79	6	15,068,50	57	91,792 36	709	204,076.85	100	287 84

YEAR ENDED JUNE 30, 1895.

	WOOD.				IRON.		STEEL.				TOTAL.			
	SAIL.		STEAM.		STEAM.		SAIL.		STEAM.				Per Cent	
	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.	No.	Average Gross Tons
Atlantic and Gulf	307	45,765 77	109	9,613 57	7	3,300.73	1	62.09	18	20,770.07	442	79,519.16	65	179.91
Pacific	61	2,079 58	21	3,026.72	....	.....	....	.....	1	2,556.37	83	7,662,67	12	93.41
Great Lakes	26	3,013,90	54	10,918.60	1	365.15	4	6,062.60	8	17,654.54	93	38,014 89	14	408.76
Western Rivers	....	.....	60	6,939.07	....	.....	....	.....	4	582.76	64	7,521.83	9	117.53
Total	394	50,859.25	244	30,497.96	8	3,665 88	5	6,131 62	31	41,563.84	682	132,718 55	100	194.60

	1896.		1895.	
	No.	Gross Tons.	No.	Gross Tons.
Total sail	387	69,029.77	399	56,990,87
Total steam	322	135,047.08	283	75,727,68
Grand total	709	204,076.85	682	132,718 55

NEWS AROUND THE LAKES.

CHICAGO.

A QUEER TOW FROM THE WINDY CITY TO THE SAULT —NAVAL RESERVES ON A CRUISE.

Special Correspondence to The Marine Record.

OFFICE OF THE MARINE RECORD, CHICAGO, July 29.

At the Independent Tug Line's floating dock the new sloop yacht Vencedor was in dock and received a new piece of bottom plank and had her bottom bronzed. She went out of dock Tuesday and leaves for Toledo to engage in the international yacht races. She was visited by many visitors while in dock, and was much admired.

The U. S. S. Michigan left Chicago Monday morning with the First Battalion of the Illinois Naval Militia on board, bound for Camp Logan, a few miles north of Waukegan, Wis , where the battalion go into camp for a week.

The Goodrich Co.'s fine new steamer Iowa is expected here from Manitowoc on or about August 1, and will go into commission on her arrival. Capt. J. C. Raleigh, who got off the City of Ludington on her trip north two weeks ago to join the Iowa, will command her. Capt. Edward Carus has been given command of the City of Ludington.

The wrecking tug Brockway, Capt. A. Bonnah, with the steamer Mark Hopkins and schooner Yankee in tow, arrived in South Chicago on the 22nd inst. from Hay Lake, St. Mary's River. The Hopkins had on board 450 tons of iron ore and the Yankee 700 tons, which was taken out of the Hopkins prior to raising her.

The Brockway left this week for Hay Lake, towing the large World's Fair dredge, also the boarding house, blacksmith shop, a fuel scow, and two dump scows, forming quite a circus procession. The Brockway will return to South Chicago and tow the Hopkins to Port Huron unless some arrangement is reached between the underwriters and D. McMorran, who raised the Hopkins.

The steel steamer Queen City loaded 202,000 bushels of corn at C. Counselman's elevator last week. The cargo was a large record breaker, exceeding, it is claimed, all previous records by 37,000 bushels.

The new steel steamer Senator (light) arrived at South Chicago, from Detroit Tuesday afternoon to take on 300,000 bushels or more of oats at the Bartlett-Frazer elevator. This is the Senator's first cargo and will no doubt be another record breaker as to the largest cargo of oats ever taken out of Chicago.

Freights are extremely slow. Carr & Blair chartered the steamer Senator for a full load of oats South Chicago, to Buffalo at ⅞c; the schooner Cora A. for corn to Port Huron at 1⅛c.; J. A. Calbick & Co. chartered the steamer Toltec and consort Miztec for corn to Kingston at 2½c, Capt. John Prindiville chartered the schooner Emily B. Maxwell and West Side for corn to Goderich at 1¼c. J. J. Rardon & Co. chartered the steamer Phoenix for wheat to Toledo at 1⅛c, the steamer Pasadena for corn to Port Huron at 1c; the steamer City of London for corn and oats to Buffalo at 1c. H. W. Cook & Co. chartered the steamer New Orleans for clipped oats South Chicago to Buffalo at 1c, the steamer Fred Pabst for corn to Buffalo at 1⅛c. WILLIAMS.

BUFFALO.

GRAIN RECEIPTS KEEP UP FAIRLY WELL, BUT COAL RECEIPTS FALLING OFF BADLY—SOME LINE STEAMERS IN ORDINARY.

Special Correspondence to The Marine Record.

BUFFALO, July 28.

The bottom is about out of the marine business here, so far as the principal item, coal, is concerned, and there is no indication that there is to be a revival of shipments right away. Shippers do not appear to be very clear on the situation. Some say that there is a big surplus of coal at the head of the lakes, and others are of the opinion that if there are not some rapid shipments late in the season to make up for the present slump, somebody will sleep cold on the other side of the lakes next winter. The thing which is certain is that the coal is not here to go forward. One odd thing in connection is the way the custom house reports of shipments keep up. By that source the amount for the past week is 56,000 tons, but the shippers have not reported any such amounts.

There has been the usual amount of grain down at the Ryan elevator at Black Rock lately. The schooner Kelderhouse, one of the last to fold up her long yards when she needs to pull up alonside the elevator, was down there Saturday, and the big steamer F. L. Vance is there now with a second load. The Raymond elevator is also running, and took out three loads last week in good shape. Both of these houses are out of the elevator pool. Grain is still coming in fast, and there is prospect of a good movement right along, though it makes no show with such boats loose as the Queen City.

There is rather more than the usual amount of Portage Lake red sandstone coming down this season. It is piled up in the Frank Williams yard many tiers high, and many of the blocks are 16 feet long. One would think that such a piece of stone would go straight through the bottom of a boat without stopping. Most of the present consignment is to go into a big hotel that the Astors are building near the Waldorf on Fifth Avenue, New York. The steamer Kelly brought down a load of this stone last week.

There have been quite a lot of changes of captains lately that sail into this port usually. Captain James Carr, who was in the Adella Shores last season and went into the Nellie Mason when the new barge Vinland, of the Frank Gilchrist line, came out, has gone into the steamer Norseman, of the same line. Captain Gillies, of the Badger State, has given way to the mate of the Hudson. It was reported that Captain Vaughn had left the Northern Queen, but it is now learned that he has gone on a leave of absence to attend his mother's funeral. Captain Brown, of the Tacoma, is sick in hospital, and his place is filled by Captain Burns, of the R. A. Packer, which is laid up here.

There is prospect of a large fleet in ordinary before this time next week, unless freights improve. The two Packers and the Mercur, of the Lehigh Line; and the New York and Rochester, of the Union Line, are laid up here; and the Reynolds, of the Lake Erie Line, at Toledo. So far the wild boats have not had to be held here more than a day or two, though not a few have come in with no prospect of another load.

The arrival in Cleveland of the canal steamer Alpha and the tow with 1,600 tons of sugar is an indication of the great increase of that traffic by water since the great refineries were set up in Brooklyn. The lake lines are having a set-to over the upbound canal rates and some of the managers say that they have it in for the Cleveland Canal Line—as well as each other.

Of course everybody is talking of the 202,000 bushels of corn that the steamer Queen City brought down this week. She is not yet unloaded. It is learned that she will not wait for all the coal in port, but will go up light to Two Harbors. As it looks now there will not be coal enough for more than one or two such loads here this week.

There is talk of a city committee to be appointed by the mayor that shall devise a plan for the development of the outer harbor. There is great need of dockage, especially for the excursion boats, and there is no reason why the three-quarters of a mile of water front on the lake facing the long breakwater should not be utilized in some way. There are many disputed claims to the abutting property, but if the city should take it for dock property the claimants would have to prove ownership or drop their claims. There is great risk of the scheme falling through before anything is done.

The canalboat men are again pointing to the exorbitant elevator charges made in Buffalo and New York and claim that nearly half of the amount in both ports is illegal. There is no doubt that the charges are high, but there are two independent elevators at work here, and yet most of the grain comes through the regular houses. When the canal men get the grip on business enough to establish an elevator of their own, they can stop the abuses quickly; but they would then have no one else to lay their hard luck to.

Capt. David Vance, the insurance agent, is down from Milwaukee this week. CHAMLERLIN.

DETROIT.

QUIET TO DEADNESS PREVAILS ALONG THE DOCKS— VESSEL MEN UTTERLY DISCOURAGED.

Special Correspondence to The Marine Record.

DETROIT, July 29.

Detroit men, who to this time had hoped for better things in freight rates, are now finally discouraged. Various are the reasons given for the depression, but all agree that the money question is more or less responsible for the panic among buyers of ore. The Livingstone and Palmer are in ordinary, and if rates do not advance, others will follow soon. L. C. Waldo and others who made season contracts can now congratulate themselves.

The sudden going of boats into ordinary fulfils the worst fears of those vesselmen who had hoped for more prosperous times in spite of the dreary outlook. Many now think that this autumn will be a repetition of 1893.

Along the Detroit docks it is quiet to deadness, and men are much discouraged. So far the increasing panic has not affected the passenger business much, but passenger agents are fearful that they too will suffer soon. It is something new to note the keen interest vesselmen take in the political questions, and the strong stands they make.

One would naturally suppose that the gradual growth of Windsor and Detroit would give the ferry company more and more each year to do in transferring passengers across the river. But such is not the case. Superintendent Clinton says that this year's traffic is less than last, and last year was worse than the year before. This he accounts for in the falling off of work in Detroit, and the discharge of many employes.

The Penberthy Injector Co. gave an outing trip to Beauvoir last Saturday on the steamer Sappho, which was greatly enjoyed by their employes and other friends. It was in celebration of the manufacture and sale of their 100,000th injector. The company furnished a very nice lunch for over 200 people who composed the party, with handsomely boxed candies for the ladies. Dancing on the boat, bicycle races and baseball at the Flats were the features of the occasion.

On Sunday afternoon the yacht Josephine, of Detroit, had a violent tussle with the fierce electric storm which swept over Detroit and Lake St. Clair. The Josephine started home from the Flats, though her baromerer fell lower than the captain said he had ever seen it before. When about two and a half miles north and west of the lightship, the storm struck the yacht and in a moment she was fairly buried in the swirl under bare poles. Her yawl was sunk as deep as the painter would allow it to go, and though pulled on board and emptied over, it immediately refilled on being launched again. The yacht drove along like a steamer without a stitch of canvas, and worked well over to the eastward. Suddenly the sky cleared and the squall was over. It was quite narrow, for the crew could see both sides of the cloud. The storm was circular in its motion, and was undoubtedly a mild cyclone. Only the staunchness of the yacht brought her safely through.

On the Detroit River there has been a great deal of thick weather this summer, owing probably to the frequent rains. The master of the Thomson Line steamer Douglas told THE RECORD that on one trip on Lake Huron, from Rogers City to the mouth of the St. Clair River, he could not see a single dock he landed at fifty feet away, and the rime dripped heavily off his boat all the way down. He said he had never seen the fog so dense and long-continued. H. McC.

DULUTH AND SUPERIOR.

THE NORTHERN PACIFIC AND DULUTH & WINNIPEG RAILROADS SOLD AT AUCTION—THE STRIKE PRACTICALLY ENDED.

Special Correspondence to The Marine Record.

DULUTH, July 28.

A very important event which occurred in Duluth last Friday was the sale of the Northern Pacific Railroad, which has so long been in the hands of receivers, at public auction. Mr. Edwin W. Winter, of St. Paul, on behalf of the reorganized Northern Pacific Railroad Co., bid in the various parcels for a little over $13,000,000. The formality has to be repeated in each state through which the road passes.

On Saturday morning the Duluth & Winnipeg road was sold in a similar manner by order of the court. In this case as in the other, there was but one bidder. John A. Garver, of New York, representing the reorganization committee of the bondholders, bid $2,373,719.44, and the property went to them at that figure. The bondholders are Canadian Pacific people, and that company now becomes the virtual possessor of the Duluth & Winnipeg road. It is considered practically certain that the road will be extended to the Canadian boundary line very soon, and there is a plan for tapping the Mesaba range for a share of the iron ore traffic.

The strike of the 'longshoremen's union seems to be at an end, having resulted in the defeat of the men, many of whom have left for the Dakota harvest fields. More non-union men than are needed are at the disposal of the contractors.

Wheat in store at the head of the lakes is apportioned among the various terminal elevator lines as follows: Belt Line, 685,758; Consolidated, 1,449,987; Globe, 2,904,877; Great Northern, 256,155; Superior Terminal, 1,426,562; Consolidated B, 116,550; Consolidated H, 178,375; total, 7,018,264. There is 15,135,744 bushels in store at Minneapolis.

Over one-half the necessary dredging for the new Duluth-Superior bridge has been completed, and the construction of the center pier has begun.

City Clerk Romming, of Superior, is about to advertise for bids for the dredging of Howard's pocket, and the work will be commenced as soon as possible. The American Steel Barge Co., has experienced much inconvenience because of the condition of the channel at this point.

FLOTSAM AND JETSAM.

Capt. F. B. Hackett, of Amherstburg, has picked up three anchors from the bottom of the Limekilns.

Mr. H. M. Hanna's yacht Comanche will soon return to the lakes via the St. Lawrence River.

It is expected that the new Lake Superior & Ishpeming Railroad will be completed within a month.

Capt. James Carr has been transfered from the barge Nellie Mason and given command of the steamer Norseman.

The little steamer Columbia, with Captain Louis Goudreau in command, and Nathan M. Bowen as engineer, is making regular trips between St. Ignace, Mackinaw Island, and Mackinaw City.

At Menominee fifty lumber shovers loaded 650,000 feet of lumber on board the steambarge I. Watson Stephenson on Saturday in twelve hours, and it was a feat unparalleled in the history of vessel loading.

HOW TO SPLICE A ROPE.

To properly splice a rope or to tie a knot that will not slip, is a simple operation, and it would be supposed that almost any workman would be able to do either, but the difficulty of getting the splices put in a rope in manufacturing establishments has been a serious drawback in introducing the use of rope for the transmission of power. There is but little information in technical literature, and some have such errors or deficiencies in the description of the illustration as to discourage an ordinary workman. The splice in a transmission rope is not only the weakest part of the rope, but it is the first to fail when the rope is worn out. If the splice is not strong the rope will fail by breakage or pulling out of the splice. If the rope is larger at the splice, the projecting parts will wear on the pulleys and the rope fail from the cutting off of the strands.

If you wish to profit by the experience of others, do not put in a "short splice" or an ordinary "long splice," or get an "old sailor" to do the work, but have a handy man follow implicitly the directions given below for a splice in a 4-strand rope.

We have had accurate engravings made of each successive operation in splicing a 1¾-inch manila rope, and also engravings of the most common knots. Each engraving was made from a full-size specimen and accurately shows the position of the parts. Tie a piece of twine 9 and 10 around the rope to be spliced about 6 feet from each end. Then unlay the strands of each end back to the twine. Butt the ropes together and twist each corresponding pair of strands loose, to keep them from being tangled, as shown in engraving No. 1327.

The twine 10 is now cut, and the strand 8 unlaid and strand 7 carefully laid in its place for a distance of 4½ feet from the junction. The strand 6 is next unlaid about 1½ feet and strand 5 laid in its place. The ends of the cores are now cut off so they just meet. Unlay strand 1 4½ feet, laying strand 2 in its place. Unlay strand 3 1½ feet, laying in strand 4. Cut all the strands off to a length of about 20 inches, for convenience in manipulation. The rope now assumes the form shown in Fig. 1308, with the meeting points of the strands 3 feet apart. Each pair of strands is successively subjected to the following operation: From the point of meeting of the strands 8 and 7, unlay each one three turns; split both the strand 8 and the strand 7 in halves as far back as they are now unlaid and the end of each half strand "whipped" with a small piece of twine. The half of the strand 7 is now laid in three turns and the half of 8 also laid in three turns. The half strands now meet and are tied in a simple knot, 11 (engraving No. 1341) making the rope at this point its original size. The rope is now opened with a marlin spike and a half strand of 7 worked around the half strand of 8 by passing the end of the half strand 7 through the rope as shown in the engraving drawn taut and again worked around this half strand until it reaches the half strand 13 that was not laid in. This half strand 13 is now split, and the half strand 7 drawn through the opening thus made, and then tucked under the two adjacent strands, as shown in cut No. 1342. The other half of the strand 8 is now wound around the other half strand 7 in the same manner. After each pair of strands has been treated in this manner, the ends are cut off at 12, leaving them about 4 inches long. After a few days' wear they will draw into the body of the rope or wear off, so that the locality of the splice can scarcely be detected.

The stretch of a transmission rope during its life is no greater in amount than that of a leather belt, yet it is a material amount, and when several ropes run side by side on a pair of pulleys, the different ropes are likely to wear unevenly, and some sag more than others, so much so, in some cases, as to materially increase not only the wear of the ropes themselves, but to increase the friction loss in the transmission. The gradual lengthening of the rope in service may decrease the tension until the rope slips on the pulley, making it necessary either to resplice the rope or to use a take-up sheave, with a long range of motion.

There is the same difference in the strength of various qualities of manila fibre as there is in oak timber or other woods. The constructor would select one quality of oak for wagon construction, another for mill work, and perhaps still another for sheet piling or temporary work; so should manila fibre be selected to suit the use it is to be put to.

Rope used for hoisting or transmission of power is subjected to a very severe test. Ordinary rope chafes and grinds to powder in the center, while the exterior may look as though it was a little worn. So difficult was it to get a satisfactory rope for these purposes that some years since we tried to ascertain the cause of the wear and find a remedy for it.

The fibres of manila rope are composed of very much elongated cells, that look under a microscope like a bundle of pipes. These are of very great strength in the direction of their length, but are weak transversely, as they are not strongly cemented together. To obtain

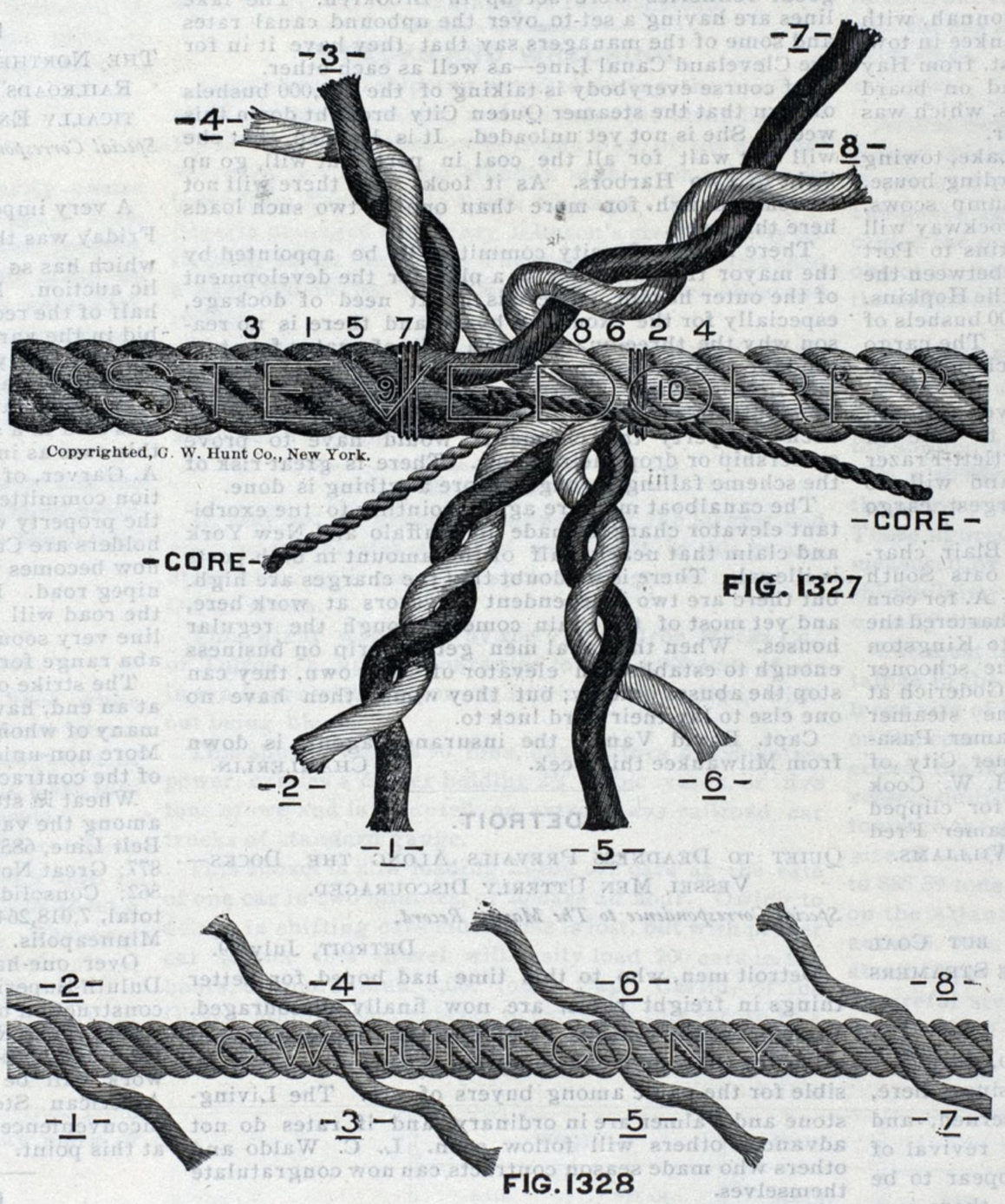


FIG. 1327

FIG. 1328

fibres of suitable size for manufacturing rope, the stems are subdivided by machinery, which separates the cells from each other, and leaves the surface of each fibre rough and uneven, somewhat like the surface shown when pine wood is split. When made into rope, these rough fibres are compelled, in bending over the sheave, to slide on each other while under pressure from the load. This causes the internal chafing and wear which may be seen in opening an old rope.

In bending a rope over a sheave, the strands and the yarns of these strands slide a small distance upon each other, causing friction, and wear the rope internally. Open a worn-out rope by untwisting the strands, and a fine powder will be found, showing that, when the rope was bent over the sheave, the strands, in sliding on each other, ground some of the fibres to powder. To obviate this difficulty, we have our rope made by lubricating the fibres with plumbago, mixed with sufficient tallow to hold it in position. This lubricates the yarns of the rope, and prevents internal chafing and wear. It lodges in the hollows and uneven places of the fibres, and lubricates the threads of the rope. The tallow makes this rope partially waterproof. After running a short time, the exterior of the rope gets compressed and coated with the lubricant, so that it looks, when running, like a rod of iron. In this condition it resists ordinary rains to a surprising extent.

In manufacturing rope, the fibres are first spun into a yarn, this yarn being twisted in a direction called "right hand." From 20 to 80 of these yarns, depending on the size of the rope are then put together, and twisted in the opposite direction, or "left hand," into a strand. Three of these strands, for a three-strand or four for a four-strand rope are then twisted together, the twist being again in the "right-hand" direction. It will be noticed that, when the strand is twisted, it untwists each of the threads, and, when the three strands are twisted together into rope, it untwists the strands, but again twists up the threads. It is this opposite twist that keeps the rope in its proper form. When a weight is hung on the end of a rope, the tendency is for the rope to untwist, and become longer. In untwisting the rope it would twist the threads up, and the weight will revolve until the strain of the untwisting strands just equals the strain of the threads twisted tighter. In making a rope it is impossible to make these strains exactly balance each other. It is this fact that makes it necessary to take out the "turns" in a new rope, that is, untwist it when it is put at work. The proper twist that should be put in the threads has been ascertained approximately by long experience. There is, however, a difference in judgment among different makers as to the exact amount that should be used for any specific work. The greater the twist, the more hard and rigid the rope is, and the better it will keep its form, but it is not quite as strong, because the fibres do not lie exactly in the direction of the center line of the rope, but at an angle with it, and the greater the twist the greater is that angle. The difference, however, is slight in practice.

The amount of work that the rope will do varies greatly. It depends not only on the quality of the fibre and the method of laying up the rope, but also on the kind of weather when the rope is used, the blocks or sheaves over which it is run, and the strain in proportion to the strain put upon the rope. The principal wear comes in practice from defective or badly set sheaves, from excess of load and exposure to storms.

The indications of excessive load will be the twist coming out of the rope, or one of the strands slipping out of its proper position. A certain amount of twist comes out in using it the first day or two, but after that the rope should remain substantially the same. If it does not, the load is too great for the durability of the rope. If the rope wears on the outside, and is good on the inside, it shows that it has been chafed in running over the pulleys or sheaves. If the blocks are very small, it will increase the sliding of the strands and threads before spoken of, and result in a more rapid internal wear.—Catalogue C. W. Hunt Co.

PINTSCH PATENT UPHELD IN GERMANY.

During the last few months incandescent gas lighting has been the subject of much litigation in the law courts, but what has taken place at home is comparatively small as compared with the litigation in Germany, where the holders of the Welsbach patents are fighting the large number of competitors who have sprung up during the last year or so. A further step in the elucidation of the disputed patents has now been made, the "Nichtigkeitsabteilnag" of the German patent office having just given its decision in connection with the application of the Continental Gasgluhlicht Gesellschaft Meteor for the nullification of the Pintsch burner patent (No. 43,991) held by the German Incandescent Gas Light Company. The application was refused, the validity of the patent being upheld.

THE SHIPPING SITUATION IN GREAT BRITAIN.

H. E. Moss & Co., of Liverpool, London and Newcastle, the well-known sales agents of steamers, make the following comment in their semi-annual statement of available vessels:

"We regret to say that the pessimistic views we have so persistently foreshadowed have been, unhappily, more than fulfilled, and the first half of 1896 may be chronicled as the worst period in the annals of steam shipping. The anticipated increase in wages in the shipbuilding and engineering trades at the commencement of the year, together with the probable rise in the cost of raw materials and a slight spurt in freights, caused, as usual, a rush to order new boats, and some of the yards were filled with orders for tramps and liners. These orders have now been nearly worked off, and if steamship owners will only content themselves in replacing such boats as are absolutely necessary for old established and existing lines, we may hope to see that improvement in freights for which we have waited so long.

"It has been demonstrated beyond all measure that in long-voyage trades it is only the newest and most modern type of steamer that can hold its own in the present days of excessive competition. The old and obsolete type of vessel must go to the wall, and for years past we have advised the realization of such property. Large numbers have been sold to foreigners, and others to be broken up, but many thousands of tons yet remain and must inevitably follow suit.

"It is exercising the minds of many of our steamship owners as to whether the present existing rates of freight are to be considered the basis of the future. For our own part we do not think so. Granted rates are as low or lower than they have ever been, we believe they have touched bottom and will shortly improve.

"The new features to be chronicled are the introduction of team into the Californian trade; the wonderful energy of foreigners, especially of the Japanese, who are starting new lines of steamers, even to our own doors, in opposition to our old established companies; the great strides made in Germany in the art of shipbuilding, where our naval architects have already had the opportunity of seeing that work in the German yards can be well, cheaply, and efficiently executed, a fact which has already told, and is bound to tell more in the future, on our own shipbuilding industry. Although quadruple-expansion engines are being fitted in some boats now building, there is no inclination to adopt them generally.

"A large number of useful second-hand steamers have been sold at very low prices to foreigners, principallyfor the Baltic and Black Sea trades, where they can be worked even now at a profit, free as they are from the excessive restrictions imposed on British shipping by over-zealous legislators.

"Many new steamers are for sale in the hands of builders. There are also a number of nearly new triplex boats that can be bought very cheaply. Prices for building new steamers are about 5 per cent higher all around than in December last, but many builders, being anxious for work, would willingly forego their standard yard charges; consequently orders can be placed practically at nearly the same prices. How long this will last it is impossible to say, but as other trades are thriving, the railways prosperous, board of trade returns increasing, surely these facts must before long have a beneficial effect on the shipping industry, and place it upon a sounder and more profitable foundation.

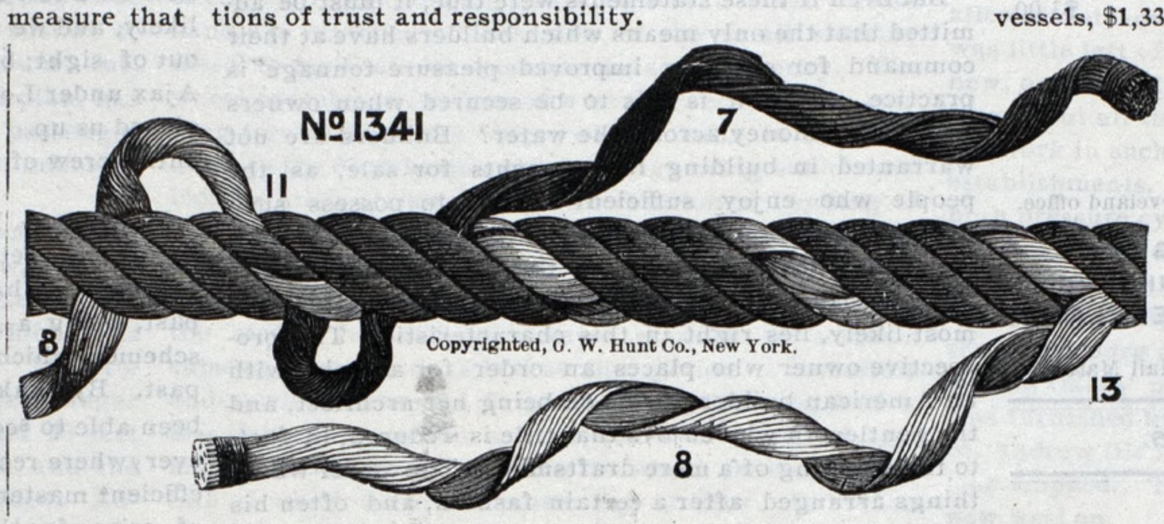
PENBERTHY INJECTOR CELEBRATION.

The Penberthy Injector Co., of Detroit, who commenced business in 1886 in a very modest way at their present location, corner of Seventh and Abbott streets, celebrated the event of the manufacture and sale of 100,000 "Penberthy" Injectors during the past ten years, by giving their employes and customers an excursion to one of the islands on the Detroit River, on Saturday, July 25.

Detroit is known as a city having some of the largest manufacturers of certain products in the world, and this firm, who have quietly, but industriously, worked their way from the lowest round of the ladder in 1886, to the top round in the short period of ten years, have added one more to the list of the largest manufacturers in the world.

When it is taken into consideration that, in this time the company has commenced with all the drawbacks incident to the commencement of any business, and have made the business of Injectors principally the largest of the world of this special article, Detroit can well be proud to add to her list that of the Penberthy Injector Co.

S. Olin Johnson, the president and manager of the company. has been the chief promoter of the business during this time, and by his able management the business has been brought up to its present standard. He gives also due credit to his able assistants, George W. Childs, Jr., secretary; Wm. O. Lee, Thos. J. Sweeney and Wm. A. Downes, who have been with him since the commencement of the business and have occupied positions of trust and responsibility.

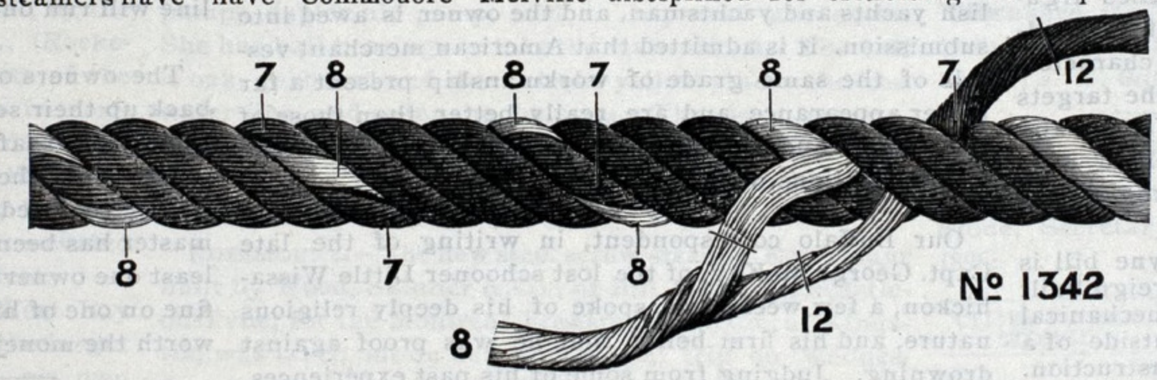


This company have a factory at Windsor, Ont., which supplies about two-thirds of the injectors sold in that country, which, by the way, were not included in the 100,000 injectors referred to, which sales apply to the United States alone. Their business extends to Australia, South Africa, and all the countries of Europe, as well as South America, Mexico and the West Indies.

While business in many lines of goods has been depressed during the past season, this company have been hard pressed to fill their orders, notwithstanding they kept their full force of employes engaged during the entire winter, endeavoring to accumulate a stock for the demand during the spring and summer months.

POOR POLICY.

A writer in New York Town Topics, speaking of the effort of the superintendent of the Naval Academy to have Commodore Melville disciplined for criticising that institution says: "Now, to the outsider all this sort of thing seems not only *banal* nonsense, but decidedly adverse to the best interests of the naval service, and calculated to raise doubts as to whether the largely military and scientific course pursued at Annapolis is, after all, the best possible mode of providing a corps of naval officers, pure and simple; not accomplished men who fit in well with scientific and social duties and vocations on shore, but men who love the sea and the ship, and who know the latter, from the double bottom to the top of her military mast, with all the appurtenances intervening. In the English service they begin the instruction of the naval neophyte by catching him young and finding out whether his physical and moral idiosyncrasies are such as to fit him for the career of a sea officer; in ours, a capacity to absorb difficult mathematics in large lumps, and a contempt for the men who supervise the machinery which drives the ship, seem to constitute the highest standard of excellence. Perhaps when the currency question is settled, and the national revenue is adjusted, there may be a committee appointed to look into these matters and to find out whether we have, after all, attained the *ne plus ultra* of naval training."



WORK OF LIFE SAVERS.

The report of Gen. Supt. Sumner I. Kimball, of the United States Life Saving Service, for the year ended July 30, 1896, has been presented to the Treasury Department. Following is a summary for the lake districts:

LAKES ERIE AND ONTARIO.—Number of disasters, 68; value of vessels, $349,680; value of cargoes, $144,940; total value of property, $494,620; number of persons on board vessels, 318; number of persons lost, 9; number of shipwrecked persons succored at stations, 5; number of days succor afforded, 5; value of property saved, $484,230; value of property lost, $10,390.

LAKES HURON AND SUPERIOR.—Number of disasters, 75; value of vessels, $1,610,485; value of cargoes, $479,205; total value of property, $2,089,690; number of persons on board vessels, 580; number of persons lost, 1; number of shipwrecked persons succored at stations, 13; number of days succor afforded, 24; value of property saved, $1,801,810; value of property lost, $287,880.

LAKE MICHIGAN.—Number of disasters, 99; value of vessels, $1,334,470; value of cargoes, $125,255; total value of property, $1,459,725; number of persons on board vessels, 1,150; number of persons lost, none; number of shipwrecked persons succored at stations, 40; number of days succor afforded, 45; value of property saved $1,332,675; value of property lost, $127,050.

TRADE AND INDUSTRIAL NOTES.

The Illinois Steel Company has converted a part of its North Chicago Works into a cement plant, where it is turning waste furnace slag into "Illinois Steel Portland cement." The slag is run in its molten form into a pit, where water granulates it. The slag is then put into a roasting oven, after which it is mixed with lime and other ingredients. The product is ground to powder and packed into bags for market.

The Gas Engine & Power Co., Morris Heights, N. Y., has plans for a new two-story machine shop, 250x76 feet, to be built of steel.

The Bucyrus Steam Shovel & Dredge Company, Milwaukee, Wis., has been organized under the name of the Bucyrus Company. The capital stock is $300,000. The incorporators are: J. M. Millman, A. W. Robinson, and A. B. Stetson.

A project is on foot to establish a large open-hearth steel plant at Duluth, Minn; also blooming, billet and rod mills, and wire drawing and wire nail plants, connected altogether as one large plant. R. S. Munger, president of the Duluth Iron and Steel Company, is one of the promoters, representing Duluth capitalists, and S. T. Wellman representing Cleveland capitalists.

LLOYD'S QUARTERLY STATEMENT.

From returns compiled by Lloyd's Register of Shipping it appears that, excluding warships, there were 334 vessels of 774,012 tons gross under construction in the United Kingdom at the close of the quarter ended June 30, as follows: Steel, 313 steamers of 741,313 tons and 29 sailing vessels, 25,964 tons; iron, 27 steamers, 4,026 tons and sailing vessel, 226 tons; wood and composite, 2 steamers, 150 tons, and 22 sailing vessels aggregating 2,333 tons. The above shows quite an increase over the 339 vessels of 707,079 tons gross reported a year ago. There are also 98 warships, of 309,435 tons gross building at British yards, 673 of which are for the British government.

THE P. S. & L. E. EXTENSION.

A contract that will have the effect of greatly increasing the importance of Conneaut as an ore receiving port has just been let. C. J. McDonald, of Pittsburg, has just been awarded the work of building the extension of the Pittsburg, Shenango & Lake Erie Railroad from Butler, Pa., to the Allegheny River. The contract covers all the earthwork and masonry for over thirty miles of the proposed road, including 800 feet of double track tunneling. The contract requires the work to be completed within the present year. About thirteen miles of road between the Allegheny and Monongehela rivers has not yet been let.

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HERE AND THERE.

It is so refreshing to find any admission from Great Britain of the superiority of anything American, that we must quote in full the following from the London Yachtsman:

The New York Forest and Stream is still fighting with its more patriotic American contemporaries over the Payne bill. We are bound to say that the F. and S. has had by far the best of it; but incidentally there has cropped up a point which merits attention from British yachtsmen, viz.: the undeniable superiority of American-made capstans over those offered by English firms for use aboard yachts. This is chiefly felt in the small sizes of capstans; for while one may get from America a double-action capstan, suitable for the fore-deck of a 42-footer, the smallest that can be obtained in England is so heavy that even the skippers of 42-footers are loth to have it on their fore-deck.

* * *

We must take some exception, however, to the statement that the Forest and Stream is ahead in its arguments against the Payne bill. These so-called arguments, so far as we have seen them, consist of mud-throwing of a nasty and unconvincing character. Among the yachts which have been made the targets for the malice of this publication are the Wadena and Comanche, the former built by the Cleveland Ship Building Co., and the other by the Globe Iron Works Co., of Cleveland. Forest and Stream says:

The American steamyacht, which the Payne bill is designed to protect by the exclusion of all foreign-built craft, is a discredit to the enterprise and mechanical skill of the nation and a laughing stock outside of a small circle immediately interested in construction. The largest and most pretentious, the Nourmahal, might readily be mistaken for a Reading collier if her yacht signals were not flying; the famous Atlanta was a complete failure, in spite of her heavy cost, as she came from her builder's yard requiring immediate alteration and a lengthening of 15 feet to fit her for use. The homely Electra, slow at best, was still slower when first built, her original engines being soon replaced by new ones, and finding their proper place in a tug-boat. Of the new yachts, the Wadena had to be rebuilt after trial, with 15 feet added amidships to correct the original faults of the design; the Comanche, though comfortably fitted below, has the bows and top sides of a British tramp steamer.

The sweeping phrase "absolute failure" is also used promiscuously in mention of other yachts, the exaggerated expression being sufficient proof of the paucity of real argument in condemning them. The remark regarding the Wadena is a palpable misrepresentation, as the lengthening occurred after she had been in commission some time. True, it was "after trial," but not immediately after her trial trip as the Anglomaniac sporting paper would have it believed. The lengthening was caused by no fault in the original design, but because the owner wished to reduce her draft without sacrificing any of her rather unusual amount of auxiliary machinery. As for the Comanche, this far-fetched comparison is based upon the simple fact that considerable deck space was allowed forward, in compliance with the wishes of her owner. This does not spoil her looks by any means, and both the Wadena and Comanche are yachts of which any American might be proud. The Comanche was built to be in every respect an American yacht, in design as well as in material; and the fault found with her appearance seems based solely on the idea that nothing is good which does not follow the English styles, in the matter of houses as well as of model. The continuous success of American sailing yachts over their British competitors, in which the credit is given very largely to the hull design, is a sufficient vindication of American ability in that direction. Why should designs not be allowed some latitude in laying out the deck plan as well?

* * *

But even if these statements were true, it must be admitted that the only means which builders have at their command for securing improved pleasure tonnage is practice, and how is this to be secured when owners spend their money across the water? Builders are not warranted in building large yachts for sale, as the people who enjoy sufficient means to possess such luxuries insist upon outlining the general arrangement of such a boat. And as for the alleged deficiencies in American yachts, the root of the whole matter, it is most likely, lies right in this characteristic. The prospective owner who places an order for a yacht with an American builder insists on being her architect, and the gentleman who enjoys that title is reduced, in fact, to the standing of a mere draftsman. The owner wants things arranged after a certain fashion, and often his desires are such that compliance with them is an absolute impossibility, especially if he has had no experience to give him proper and practical ideas. After this is explained to him, he will insist on having his own way as nearly as possible, and in this way builders are in many cases forced to act against their better judgment. Then, if the experiment turns out badly, the builders receive all the discredit. If an American places a yacht order in England, he either gives the builders full discretion in the matter, or else he is so far distant that he is unable to dictate with any certainty. He is either too far away to inspect the yacht during process of her construction, and the builders, it is probable, either do not consider his unique instructions as matters serious enough to pay any attention to, or else they convince him in a peremptory and excathedra style that his suggestion cannot be considered for a moment; that they violate all established rules for English yachts and yachtsman, and the owner is awed into submission. It is admitted that American merchant vessels of the same grade of workmanship present a far better appearance and are really better than those of the British; and why should it be otherwise, under the same conditions, with pleasure craft?

* * *

Our Buffalo correspondent, in writing of the late Capt. George McKay, of the lost schooner Little Wissahickon, a few weeks ago, spoke of his deeply religious nature, and his firm belief that he was proof against drowning. Judging from some of his past experiences, his belief in that regard would seem to be justified. His career, from the time of the Lady Elgin disaster, had been checkered with a succession of hair-breadth escapes in which he was face to face with death a score of times. One of these occasions was recalled while in a reminiscent mood the other evening by Capt. Alex. McKay, of the steamer City of Detroit, who is a distant relative of the deceased, and who began his lake-faring career with Capt. George McKay, early in the 70's, soon after his arriving in this country from Scotland.

"I was sailing with him in the old schooner Joseph in the season of 1872," said Capt. McKay. "We were in a tow of four schooners, bound up the lake in tow of the old tug Moore. She had the Ajax and Adriontic ahead of us, and the old schooner Baltic was towing behind us. A violent gale struck us off Rond Eau, not far from where the Captain finally met his fate. The tug kept going with us as well as she could, but finally the tow-line parted between the Joseph and the Adriontic, having chafed in two at our rail, and looking ahead we could see the latter settle in the water. The Ajax was making very bad weather of it, and the Moore was obliged to give that schooner all her attention. The Moore finally passed out of sight with the Ajax in tow, and the Joseph and Baltic were left together. We managed to get along with the foresail and jib, and we wanted to cast off the Baltic's tow-line. The Captain refused to do this, although it seemed as much as we could do to take care of ourselves. The Baltic was a pretty old boat and she soon began to go to pieces. The crew got into the yawl, and made for our boat; but after covering part of the distance, the yawl, with seven men in it, went down in the trough of the sea, and never came up again. Still we held the towline, although it greatly interfered with us; but finally the timber head pulled out of the wreckage, and the towline was soon freed by the action of the water, after which we hauled it aboard. We worked all night at the pump, and blew a distress signal. A steamer came within hailing distance, but the captain said he could do nothing for us, but would send assistance if we could hold on a few hours longer. This then seemed very unlikely, and we were in despair when the steamer passed out of sight; but the tug Moore, which had taken the Ajax under Long Point, was in search of us, and soon picked us up. It was only then that we learned that the entire crew of the Adriontic had perished."

* * *

Manager L. M. Bowers, of the new Rockefeller fleet, seems to be setting the pace for liberality again. Masters salaries have been sagging off for several years past, being a considerable item in the retrenchment schemes which have been prevailing for some years past. By making an offer of $1,500 Mr. Bowers has been able to secure men to command his boats who are everywhere recognized as among the most capable and efficient masters on the lakes. By instituting a system of prizes for the best season's showing he offers another incentive to the ambition of the captains of the fleet. This plan was tried last year on the passenger steamers of the Goodrich Transportation Co., on Lake Michigan, with all its officers, and worked so well that the company has thought it advisable to try the same tactics again this year.

* * *

That the lake trade is constantly developing on new lines is again demonstrated by the closing of a contract between the Japaneses Mail Steamship Co., Limited, and the Great Northern Railroad Co., for the establishment of a steamship line between Toledo and Seattle. The Great Northern will thus extend its operation into the Orient, and its bills of lading and passenger tickets will be in force from Tokio, Japan, to Buffalo, N. Y., via the fleet of the Northern Steamship Co. The first steamer is expected to leave Seattle August 15, and the line will run one steamer each way monthly.

* * *

The owners of lake tonnage seem perfectly willing to back up their sentiments, expressed last spring, that they wanted safer navigation through the Sault. They state that if their masters will not obey the rules they will be required to stand the fines, and it is believed one master has been disciplined in this matter already. At least one owner refused to apply for the remission of a fine on one of his steamers, on the ground that it was worth the money to him to have their rules obeyed.

CURRENT FREIGHT STATISTICS.

The total shipments from Alpena from the opening of navigation to July 15, are as follows: Lumber, 37,787,000 feet; shingles, 3,120,000; lath, 1,360,000; railroad ties, 233,203; cedar posts, 181,500; telegraph poles, 3,921; pound net stakes, 400; cedar, 360 cords.

The shipments of ore from the port of Ashland thus far this season have been one-third less than they were for the corresponding time last year. Ore shipments from Ashland to July 2, this year were 808,663 tons, against 1,123,071 tons for the same period last year. The shipments from Ashland to July 20 this year increased this year as compared with last year.

The British whaleback sailing ship Ancona, of Glasgow, is in New York, loading case oil for Shanghai. The hull, which is built entirely of steel, is of the "tumble home" type, broader at the water line than at any point above it. Her sides slope at such an angle that one can almost walk down them without the aid of a ladder. The sides curve over to meet a narrow deck, which runs flush from end to end. This is circled by an iron railing instead of bulwarks. She has the bow of a clipper and the elliptical stern of a racing yacht.

SHIP BUILDING AND REPAIRS.

THE OUTLOOK GROWS WORSE.

The sudden falling off in shipments which is compelling a large number of large as well as small craft to go into ordinary, has, for the present, at least, put a damper upon the prospect of shipbuilding for next season. There is a little talk about new tonnage for special trades, but it is not well backed up. The Goodrich Transportation Co., however, expect to have a new steamer to take the place of one of their old side-wheelers by next spring, although work on the plans has not yet begun. The daily newspapers have been giving currency to a story that two new steamers, with sleeping capacity for 500 people, are to be built for night runs between Milwaukee and Chicago, the traffic to be helped out during the day by the Christopher Columbus. As this route is already pretty well covered, and as the profits of the Columbus have not been at all commensurate with the sum of money invested, there seems to be but little confidence that the project will be pushed to consummation, these dull times. The Hurson line, which is referred to in connection with the plan, has means at its command for going into the passenger business without building new boats, and will undoubtedly act conservatively in the matter.

A meeting of the directors of the American Steel Barge Co. will be held at New York to-morrow, July 31, at which plans with specifications will be presented by Capt. Alex. McDougall for a new steamship which it is proposed to build on the company's account. The proposed boat is to be 408 feet in length, or four feet longer than the John Ericsson, by 48 feet beam, and 28 feet depth. Work is being rushed on the Ericsson, and the installation of her machinery is well forwarded. Additional dredging is being done to enlarge the floating capacity of the yard.

It is not likely that there will be any great haste in the construction of the car ferry steamers for the Central Michigan Railroad Co. The road itself as yet exists chiefly on paper, and the prospects for any actual construction, in the present state of financial uneasiness, are that nothing is likely to be done for some time. Other car ferry projects are simmering, but no progress is being made at present.

N. T. Palmer, of Bath, Me., is laying the keel for a four-masted schooner, to be about the size of the Wm. B. Palmer.

LAUNCHES AND TRIAL TRIPS.

SIR WILLIAM SIEMENS.—The Globe Iron Works Co. launched the steel steamship Sir William Siemens at their yard at 10:30 o'clock last Saturday morning. The Siemens is the second of the two steamships built by the Globe people for the Bessemer Steamship Co., (Rockefeller syndicate) and is in all respects a duplicate of the Sir Henry Bessemer, which has already been in commission for three weeks, and which was fully described in THE RECORD of May 14. The following are the principal dimensions: Length over all, 432 feet; between perpendiculars, 412 feet; moulded beam, 48 feet; moulded depth, 28 feet; from keel to sheer strake, 28½ feet.

APPOMATTOX.—Capt. James Davidson, of West Bay City, launched on Saturday, July 25, at 4 p. m., the larger of the two wooden steamers he is building on his own account. The only mishap was the falling of the smoke-stack, which had not been sufficiently guyed, but the damage done amounted to very little. Capt. Davidson's rule is to launch his boats in as nearly completed shape as possible, and the Appomattox will probably be in commission in another week. She is 340 long over all, by 43 feet beam and 26 feet molded depth. Her engines are triplex, built by the Frontier Iron Works, of Detroit, the cylinders measuring 20,33, and 54 inches in diameter, with a common stroke of 42 inches. Her boilers are Scotch type, 12¼x12 feet, built by Wickes Bros. of Saginaw, and fitted with the Howden hot draft, The ship registers 2,643.37 tons gross and 2,082.17 net, and is thoroughly modern in all respects. In addition to a complete electric lighting plant, steam windlasses, steering gear and capstans, she has a Chase steam towing machine and 1,300 feet of cable for towing consorts.

SENATOR.—The new steamship Senator, built by the Detroit Dry-Dock Co., to the order of the Wolverine Steamship Co., left the Orleans street yard last Sunday morning, and proceeded to South Chicago to load oats. The Senator is a handsome boat, and is one of the largest class afloat. In her construction the ultra-abandonment of deck houses has not been resorted to, although her deck, including fuel hatches, is clear from texas to engines. She has a roomy topgallant forecastle, and there is one cargo hatch between that and the texas. There is no gangway connecting the bridge and top gallant forecastle, both being reached by steps from the spar deck.

A novel feature of the Senator's equipment is the steering engine, which is of a type entirely new to the Great Lakes. It is known as the Sentinel and is manutured by Allen & MacClellan, Polmadie, Glasgow, Scotland. Unlike nearly every other steam steerer, the machine is located, not directly below the wheel in the pilot house, but in the fantail of the ship. It acts like a huge capstan, with grooved drum about six feet in diameter, and is set just forward of the quadrant of the rudder, from which the chains, after crossing, pass around the drum. The action of the steerer is directed of course, from the pilot house, where a small crank handle is attached to one side of the small steering wheel to facilitate its operation in an emergency. The wheel operates, by means of a bevel gear, a shaft running fore and aft the ship, which turns in bearings hung to the deck-beams, the bearings being sufficiently loose to allow for any moderate vibration or bending of the hull. At the after end the motion of the shaft is communicated to the throttle by means of a worm gear, and, as before stated, steam is admitted which works the steerer in much the same manner as a steam capstan is operated, save that the motion is reversible and pawls are absent. It is considered that accident is less liable to happen to a good two-inch shaft of this length (nearly 400 feet) than to wheel chains, in any link of which there is a possibility of flaw. But even should the shaft break the steam steerer, in this position, is still available for use, there being a small steering wheel attached directly to the machine. There is of course, the usual hand wheel aft as required by law. The Senator is also equipped with a light anchor astern, which will enable her to make sudden stops in the Sault and other close quarters, without the necessity or danger of swinging about as would follow the dropping of the anchors from her bow.

VAILIMA.—The new steam yacht Vailima, designed by William Gardner, of New York, was recently launched at Ogdensburg by the Spalding Boat Works. She was constructed by W. H. Post, and is 60 ft. in length over all, or 55 ft. on the water line. She has a fore-and-aft compound engine, built by T. S. Marvel & Co., of Newburg, which will develop about 100 horse-power, and steam will be supplied by an Almy water tube boiler of the latest design. There will be two auxiliary feed pumps, duplex air pump, and an improved condenser. She has ball bearings to take the main thrust. The hull is oak, garboard and sheer stroke yellow pine to the load water line, and cedar the balance. The deck has mahogany partners and covering boards, the balance being pine strips. The pilot house, stateroom and engine room are finished in mahogany.

ROSEMOUNT.—The new steel screw steamer Rosemount built by Wood, Skinner & Co., of Bill Quay, Newcastle-on-Tyne, for the Montreal Transportation Co., of Kingston was taken out on her official trial trip on Wednesday, the 8th inst. She is 238 by 41 by 21⅓ feet, and her engines, which were built by the Northeastern Engineering Co., Limited, developed speed which was most satisfactory to both builders and owners.

GENERAL REPAIR WORK.

CLEVELAND.—The barge Sagamore, which struck in the Sault a few days ago and had to be lightered off, is in the Cleveland dry-dock. The Globe Iron Works Co. is making the repairs. It is necessary to remove thirteen plates. At the Ship Owners' dry-dock the Gladstone got a new wheel, and the ferry Superior was in to stop a leak. The H. A. Tuttle, which received some bottom damage by stranding at Bailey's Harbor, has been ordered here from Buffalo to lay up, and will repair at leisure.

BUFFALO.—The Samoa is in Mills' dry-dock for survey, and to repair damages caused by striking in the St. Lawrence River. The survey is being made by Messrs. Parsons and Gaskin. Half her keel is gone, and more than thirty broken frames have been found. The damage has not yet been reduced to figures. A survey was held on the schooner Mautanee by Edward Gaskin, representing Thomas Madden, the owner, and W. J. Wood, on behalf of the Goodrich Transportation Co., whose tug Arctic inflicted some injury to the side of the barge. The damage was assessed at $900. The dry-dock bill for repairs to the Canisteo, which struck a lock in the Welland, was about $700.

CHICAGO—At the Chicago Ship Building Co.'s shipyard the Goodrich Co.'s twin screw steel steamer Virginia was in dock for a new blade on one of her wheels and the Marcia for some repairs.

At Miller Bros.' shipyard the Dunham Co.'s tug L. B. Johnson was in dock and received seven new frames and 13 new outside planks on the port side, opposite the boiler house; also considerable repairs to her fantail.

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DETROIT.—The rebuild of the engines of the steamer Merida, which was done jointly by S. F. Hodge & Co. and the Frontier Iron Works, was completed in time to allow the steamer to leave last Saturday night. There was little left of the Merida's engines for use in the new, one old cylinder and a few connections constituting about all the old material. The accomplishment of the work in such a limited time is a great card for both establishments. At S. F. Hodge & Co.'s plant a new high pressure cylinder is being made for the engines of the steamer Thomas Wilson, which will have it put in at the end of her present trip. This establishment has also been putting general repairs in the machinery of the Gettysburg and Norseman. The steamer M. Sieken was on Oades' marine railway for a new wheel, which was furnished by the Frontier Iron Works. The steamer St. Andrew (Br.) was in the Detroit dry-dock to have a leak stopped. The Peshtigo is now in dock, getting a new keel on.

STURGEON BAY.—The scow which Rieboldt, Wolter & Co. built for their own use was launched last Thursday. The barge Emerald was docked Thursday for an overhauling below the water-line. Two planks were put in on either bow, and her bottom was recalked. The tug George D. Nelson will receive a thorough rebuild next winter. She will be raised about 16 inches forward, and new decks, deck-beams, stanchions and rail will be put in. Her boiler will be moved aft several feet to improve her time. The dry-dock people are getting a quantity of Michigan oak from Muskegon for use in this and other ship-yard work next winter.

REPAIR NOTES.

The Canadian steamer Alaska broke her shaft Sunday of last week, 15 miles off Detour. Repairs were made by Hickles Bros., Sault Ste. Marie.

The work on the hull of the steamer Jim Sheriffs, at Milwaukee, is almost completed, and she will be out of the shipyard in another week. She has cost her new owner, J. W. Squires, of Marine City, less than $18,000.

VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD by George F. Stone, Secretary Chicago Board of Trade, July 25, 1896:

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Albany	.....	30,000	125,000	.....	.....
Baltimore	944,000	384 000	283,000	39,000	.....
Boston	875,000	195 000	216 000	42,000	.....
Buffalo	1,494,000	144,000	132,000	118,000	226,000
" afloat	.....	.....	.....	.....	.....
Chicago	13,874,000	4,979,000	1,211,000	303,000	12,000
" afloat	.....	.....	.....	.....	.....
Cincinnati	7,000	1 000	16,000	2 000	.....
Detroit	170,000	1,000	5,000	24,000	.....
" afloat	.....	.....	.....	.....	.....
Duluth and Superior	7,018,000	6,000	185,000	309,000	112,000
" " afloat	.....	.....	.....	.....	.....
Indianapolis	388,000	101,000	2 000	.....	.....
Kansas City	910,000	28,000	7,000	5,000	.....
Milwaukee	393,000	2,000	.....	363,000	25,000
" afloat	.....	.....	.....	.....	.....
Minneapolis	15,136 000	21,000	226,000	67 000	9,000
Montreal	314,000	23,000	276,000	6,000	45,000
New York	1,746,000	293,000	1,652,000	30,000	48,000
" afloat	32,000	33,000	122,000	25,000	.....
Oswego	77,000	55,000	.....	.....	49,000
Peoria	103,000	17,000	112,000	4,000	.....
Philadelphia	463,000	111,000	112,000	.....	.....
St. Louis	949,000	215,000	91,000	3,000	.....
" afloat	90,000	154,000	.....	.....	.....
Toledo	563,000	37,000	4,000	122,000	.....
" afloat	.....	.....	.....	.....	.....
Toronto	150,000	.....	71,000	.....	22,000
On Canal	568,000	249,000	789,000	90,000	41,000
On Lakes	878 ,000	1,651,000	882,000	15,000	150,000
On Mississippi	.....	80,000	18,000	.....	.....
Grand Total	47,142,000	8,810,000	6,537,000	1,557,000	740,000
Corresponding date 1895	39,229,000	5,207,000	4,887,000	155,000	40,000

A SIGNAL SUCCESS.

Under a title similar to the above, the New York World of Sunday, June 28, devotes the greater part of a page to an illustrated description of the extensive plant of Randolph & Clowes, Waterbury, Conn., one of the RECORD'S old friends and prominent advertisers. The place is described as "a vast property covering seven acres of ground, employing on an average 600 people, equipped in all its different parts with the finest and most modern mechanical appliances for the production of any conceivable device in brass, copper or bronze, from a stair rung to a locomotive or steamship; an industry that never sleeps by day or night."

The World pictures the plant as it was in 1870 and in 1880. At that time it was owned by Brown & Bros., who were compelled, in January, 1886, to make an assignment. Mr. George H. Clowes, who had formerly occupied a clerical position of responsibility in a New York banking house, had in 1874, accepted an offer from Brown & Bros., to become their head bookkeeper, and filled this position for the next eleven years. He had, however, nothing to do with the management of the concern, in a financial way or otherwise. He was retained by the trustees of the company to assist them in winding up its affairs, and realizing the vast possibilities of the business he went to New York and saw Mr. Edward F. Randolph, of that city, a friend of many years' standing and a man of wealth, and induced him to put in sufficient capital to buy the establishment. Mr. Randolph did so upon the condition that Mr. Clowes should assume entire responsibility for the direction and management. The plant was bought for about $42,500 in April, 1886.

At this time there were fifty men and a clerk employed. There are now eight superintendents and over 500 men employed, and the firm has important branches in New York, Boston, Cincinnati and Chicago.

In three years only $105,000 capital had been paid in, yet at the end of that time this thriving partnership, in its seamless tube, brazed tube, and kettle departments, was transacting a business exceeding $600,000 per annum, a surprising showing upon the original investment. They consumed large quantities of sheet brass and sheet copper, and the propriety of the firm engaging in its manufacture was suggested. The business had outgrown its quarters anyhow, and in March, 1889, the old rolling mills of Brown & Bros. was purchased at a cost of $75,000. More money was expended in betterments until the actually invested capital is somewhat in excess of $700,000; but the plant could not be duplicated for less than $1,250,000.

Another illustration in the World shows the extent of the present plant.

Perhaps the main cause for the rapid growth and enormous proportions of this business may be accounted or by the system of close and systematic economy upon which Mr. Clowes has insisted. The expenses of selling and marketing goods as well as the general expenses of management—all outside of the actual cost of production, has been reduced to a minimum, never exceeding 3 per cent of their sales, as compared with 7 to 12 per cent usual in establishments of this general nature.

The seamless tube business is one of great technical difficulties, requiring the most costly and ponderous, as well as delicate machinery. Only skilled workmen of many years' experience are employed in this branch. The manufacture of tubing up to four or five inches requires more than ordinary skill and outlay of capital, and the difficulties are very greatly increased with every inch of diameter in excess of four inches. Owing to this fact only a few seamless tube manufacturers make tubes up to eight inches, the others confining themselves to tubes five inches and less in diameter. The largest tubes made in Europe are only 12 to 14 inches, and only one or two companies anywhere make anything nearly as large as these sizes. Realizing that what everybody could do would in time become unremunerative, Mr. Clowes has for the past five or six years been exerting all his energies toward developing machinery to turning out tubes of the greatest dimensions, until now the firm turns out tubes 38 inches in diameter, 6 feet long; 24 inches in diameter, 12 feet long; 12 inches in diameter 20 feet long.

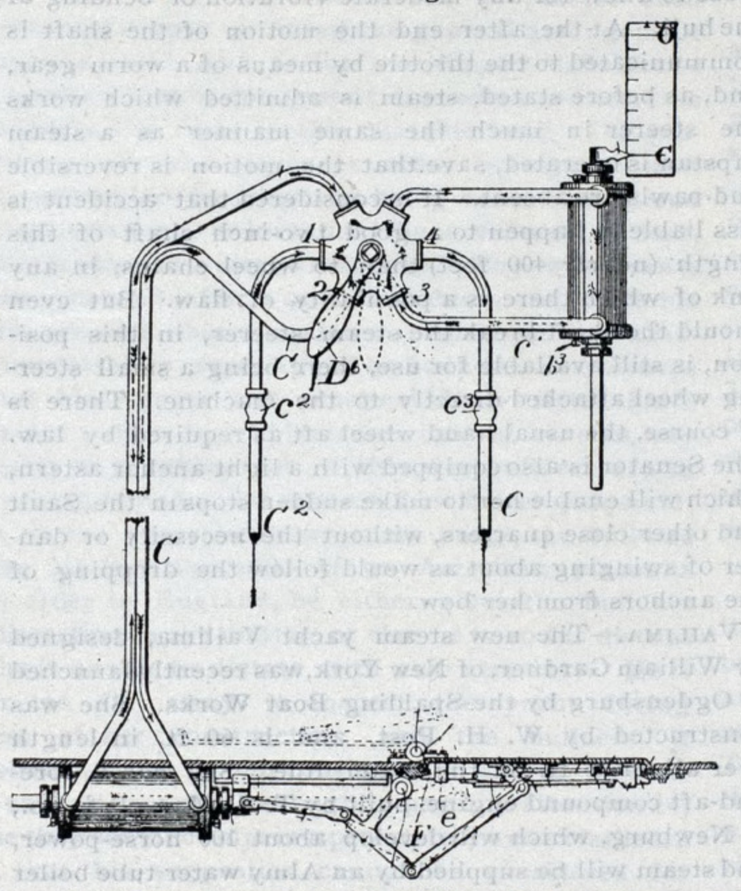
Owing to the chemical characteristics of copper, it has been considered almost an impossibility to get castings perfectly sound. The difficulties, however, are not, or have not been insurmountable until the larger diameters are attempted. Mr. Clowes made up his mind a long time ago that the only way to get an absolutely perfect tube, or a seamless tube at all of large diameter was to first roll a sheet of copper or brass, circle it, and from this circle draw the tube. In this way, not only large tubes but copper house boilers up to 24 inches diameter and 200 gallons capacity are seamless drawn.

Nearly two years ago we illustrated the grotto of tubes which formed the exhibit of this firm at the World's Fair. On this they were honored with two medals and awards.

THE LIBRARY TABLE.

The Fiction Number of Scribner's Magazine is in circulation for August. Its cover is printed in twelve colors, from designs by Will H. Low. Another artistic novelty is a series of marginal illustrations and decorative border by Orson Lovell, illustrating a comedietta by Annie Elliot, entitled "As Strangers." Six other short stories, continuances of serials, and several special articles of wide-spread popular interest contribute to make up a very attractive number.

The August Arena contains its usual quota of able articles upon the recognized and some of the as yet unrecognized questions of the hour. The Arena is unique among magazines in its wide range of subjects, its catholicism and breadth of thought and its fearlessness



APPARATUS FOR CLOSING WATER-TIGHT DOORS.

in dealing with all questions affecting the moral and social well-being of the people. It is essentially a free lance, recognizing allegiance only to the broad principles of truth, justice and liberty.

Harper's Magazine for August contains the first part of a new serial story by Mark Twain, entitled "Tom Sawyer, Detective," which will probably, like its predecessors, of that series, deal more or less with Mississippi life, when the commerce of that great waterway was in its palmist days. Other features are a paper on "The White Mr. Longfellow," by W. D. Howells; "Peeps Into Barbary," by J. E. Budgett Meakin; a spirited description of "Sport in Northern Canada," by Frederick Remington; and a delightful sketch of animate nature, entitled "Doorstep Neighbors."

The August issue of The Century is the Midsummer Holiday number, and appears in a distinctive cover. The opening paper, "An Island Without Death," by Miss E. R. Seidmore, the author of "Jinrikisha Days," gives an account of a visit to Miyajima, a sacred island in the Inland Sea, one of the three great sights of Japan. A paper on "The Viceroy Li Hung Chang," is contributed by the Hon. John W. Foster, who, it will be remembered, was lately confidential advisor to the Emperor of China, and in that capacity accompanied the viceroy to Japan, where the treaty of Shimonoseki was negotiated. There is also printed the first of a group of articles from the journals of the late E. J. Glave, who crossed Africa in the service of The Century in exploration of the slave trade.

Harper's Round Table of July 28 contains a description of the actual duties of the boys on the schoolship St. Mary's.

HYDRAULIC SYSTEM FOR CLOSING WATER-TIGHT DOORS.

Mr. William B. Cowles, the well-known consulting engineer, who has filled positions with such representative shipbuilding companies as Cramps, on the ocean, and the Globe, on the lakes, has just obtained a patent upon a valuable invention on which he has been at work for some time. It is a hydraulic system for closing the doors of water-tight bulkheads on board ship. The question of closing these compartments promptly in cases of emergency is considered a most important topic in naval circles, where it has been pretty generally agreed that hinged doors are, as a rule, out of the question, and that doors, to be successful, must move vertically or horizontally. Col. Soliani, of the Italian navy, recently read a paper on this subject in England, in which he claimed that owing to the obstructions which commonly get into the doorways between engine room and firehold, it is almost impossible to get a door that is absolutely reliable. He says that firemen have nearly always a great horror of the idea of being locked into a compartment and drowned like rats in a trap, and rather than endure the prospect of such a fate, they will leave obstructions in the doors to prevent their closing hermetically. As a result, Col. Soliani recommends a door that shall move vertically, and where practicable, upward instead of downward when closing, so that the upward movement will tend to throw out of the aperture such lumps of coal and other obstacles as have been left purposely or unintentionally in the gangway.

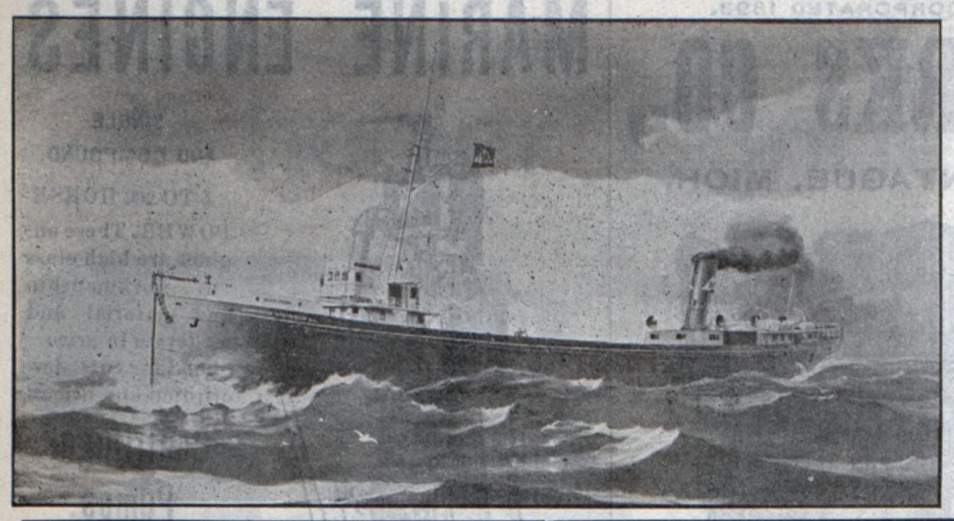
Mr. Cowles' idea contemplates a hinged door in the description given below, but it would seem that the same or a similar device could be applied to a door moving horizontally, and perhaps, aided by counterweights, to one moving vertically.

Mr. Cowles' invention consists of the application of hydraulic power to a series of levers which shall move the hinged door a distance of approximately 180°, or from a closed position around to an open position against the bulkhead in which the aperture is made. The power applied is to be heavy enough to guarantee a closing against any pressure that might be exerted by water flowing in an opposite direction. One of these appliances is necessary for each water-tight door, and each is operated separately from the pilot house, the upper part of the accompanying drawing representing the part of a device which is located in or near the pilot house. An indicator in the pilot house tells exactly what each door is doing, and the master or other person operating the device can tell exactly whether everything is working properly or not. The device has received a practical test, resulting very much to the satisfaction of the inventor, who is usually the hardest person to please on an occasion of that sort. Mr. Cowles' claims are practically as follows:

In a hydraulic system, the combination, with a plurality of fluid circuits, of an operating cylinder and an indicating device in each of said circuits, a piston in each of said cylinders, a valve in each circuit for controlling the admission of fluid pressure to the cylinder in that circuit, with mechanism operated by one of said pistons for controlling the valve of a plurality of the other cylinders. Also a door and mechanism for moving the same in each of said circuits, the mechanism to be adapted for moving the said door through approximately 180° about its hinges, and for automatically locking and unlocking said door. This mechanism consists of a T lever pivoted on the opposite side of the door-frame from the hinges, a reciprocating rod pivotally connected to one arm of said T lever, a crank and crank-shaft journaled on said door, and a connecting-rod between the other arm of said T lever and the crank; also of means for automatically locking the crank-shaft against revolution and for releasing the same when the door is in approximately the closed position, bolts carried by said door, and a device operated by the crank-shaft, when released, for reciprocating said bolts.

PROPOSALS.

U. S. ENGINEER OFFICE, 185 Euclid Ave., Cleveland, O., June 30, 1896. Sealed proposals for dredging at Sandusky Harbor, Ohio, will be received here until 2 o'clock p. m., Standard time, August 7, 1896, and then publicly opened. Information furnished on application. JARED A. SMITH, Lt. Col. Eng'rs. 30-31



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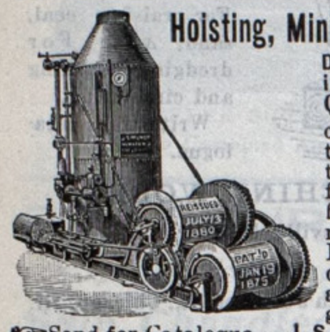

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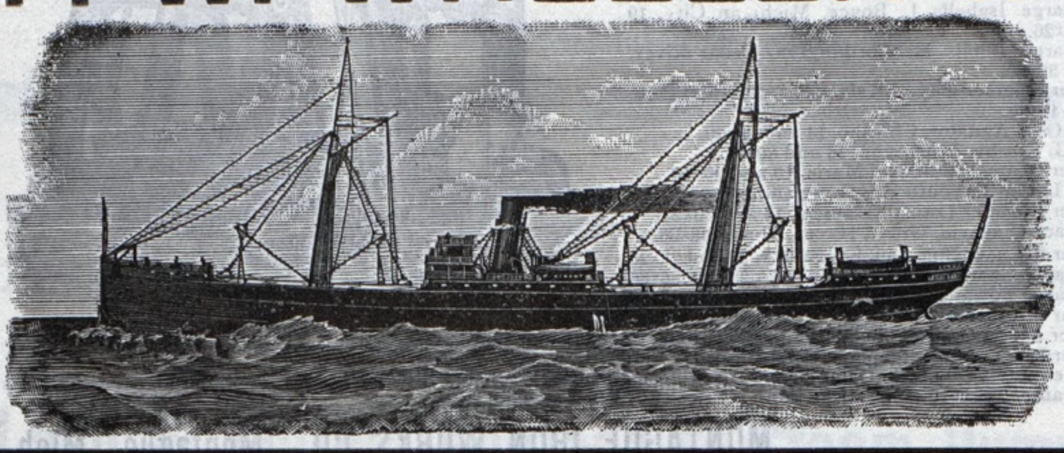

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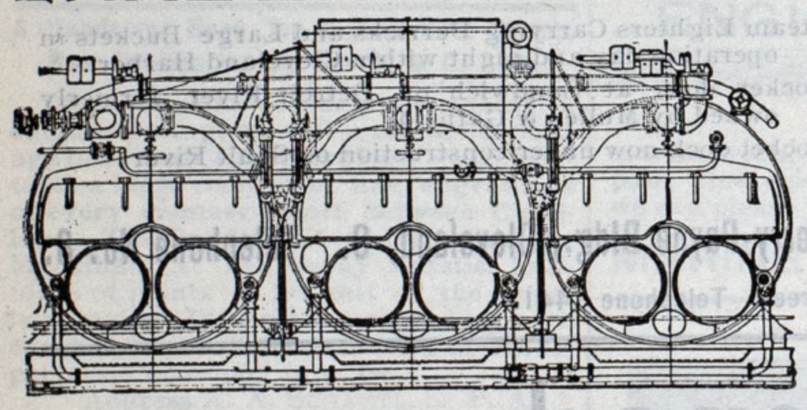

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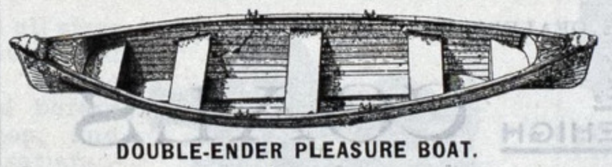

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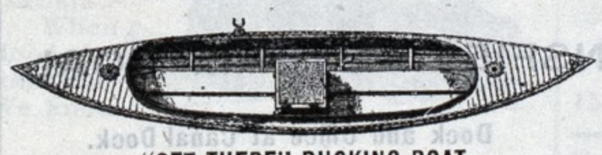

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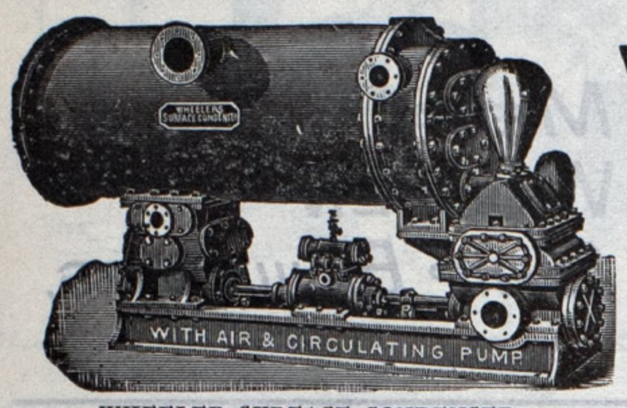

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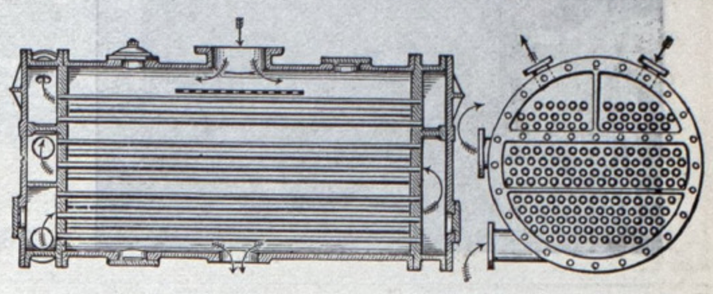

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D. T. Helm	14x72	(2) 17x17	83	68	18	9.3
E. P. Ferry	12x72	20x20	80	66.8	15	7.6
Black Ball No. 2....	12x72	18x20	73	58.6	15.5	8.4
A. A. Carpenter ...	12x72	18x20	75	60	15.6	8.6
Thomas Hood.....	13x72	18x20	71	59.5	15.6	8.6
J. V. Taylor.....	13x72	18x21	75	60.8	15.6	8.6
Satisfaction	12x72	18x20	73	58	15	8
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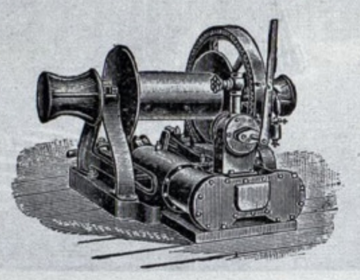

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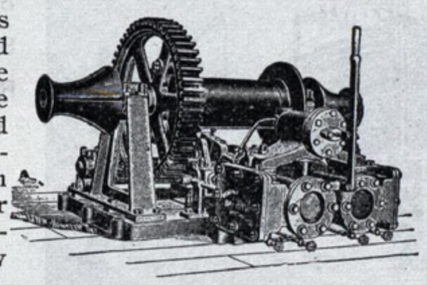

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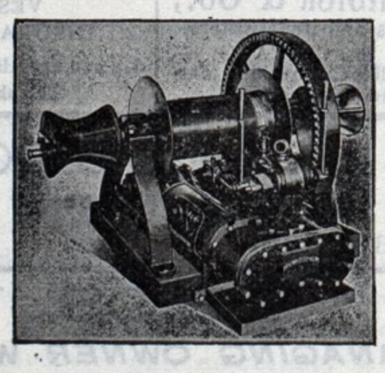

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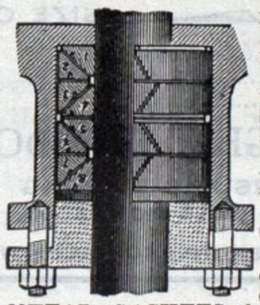

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